characterized by arterial aneurysms at an early age (mean age at death, 26.0 years). There was also a high incidence of pregnancy-related complications in 6 of 12 women. Compared with patients with Loeys-Dietz syndrome type 2, those with Loeys-Dietz syndrome type 1 underwent cardiovascular surgery at an earlier age (mean age, 16.9 years vs 26.9 years) and died an earlier age (22.6 vs 31.8 years). In the 59 surgeries in the cohort of patients studied, there was only one death during the procedure, distinguishing Loeys-Dietz syndrome from vascular Ehlers-Danlos syndrome.

Comment: Mutations of genes in coding for TGF-β receptors 1 and 2 are associated with a continuum of clinical features, including mutations that result in Marfan syndrome, those associated with the Loeys-Dietz syndrome, and those associated with vascular Ehlers-Danlos syndrome. Given the different phenotypic characteristics of patients with TGF-β receptor mutations and the potential for pharmacologic manipulation of TGF-β receptors, a study such as this that characterizes phenotype with genotype is crucial to more precisely target therapy in patients with genetically based disorders.

Identification Of Patients At Low Risk For Recurrent Venous Thromboembolism By Measuring Thrombin Generation

Hron G, Kollars N, Binder BR, et al. JAMA, 2006;296:397-402.

Conclusion: Patients at low risk for recurrent venous thromboembolism (VTE) can be identified by measurement of thrombin generation.

Summary: Patients with VTE are often investigated for thrombophilic risk factors. The large number of potential thrombophilic risk factors makes this complex and expensive. The authors sought to determine whether the risk of recurrent VTE could be assessed by a global coagulation assay that measures thrombin generation.

This was a prospective cohort study of 914 patients. All patients had a spontaneous VTE and were followed for an average of 47 months after discontinuation of oral anticoagulant therapy. The study period was from July 1992 to July 2005. A commercially available assay was used to measure thrombin generation. Excluded patients included those with secondary VTE, those with recurrent VTE, or those with a known thrombophilic risk factor such as antithrombin, protein C or protein S deficiencies, the presence of lupus anticoagulant, or cancer or pregnancy. The primary outcome measure was an objectively documented episode of recurrent VTE.

VTE recurred in 100 patients (11%). There was lower thrombin generation in the patients without recurrent VTE compared with those with recurrent VTE (349.2 ± 108 nN vs 415 ± 110.5 nN, $P < .001$). In patients with thrombin generation values between 400 nN and 300 nN, the relative risk of recurrence compared to patients with thrombin generations >400 nN was 0.42 (95% confidence interval [CI], 0.26 to 0.67, $P < .001$). In patients with measured thrombin generations <300 nN relative risk was 0.37 (95% CI, 0.21 to 0.66, $P = .001$). For 4 years, the probability of VTE recurrence in patients with thrombin generation <400 nN was 6.5% (95% CI, 4.0% to 8.9%). In those patients with thrombin generation values >400, the probability of VTE recurrence was 20.0% (95% CI, 14.9% to 25.1%, $P < .001$). Patients with thrombin generation <400 nN had a 60% lower recurrence of VTE than those with greater values of thrombin generation (relative risk, 0.40; 95% CI, 0.27 to 0.60; $P < .001$.

Comment: There are data to suggest that patients with idiopathic VTE benefit from longer periods of anticoagulation than those with VTE and a recognizable risk factor such as surgery or trauma. Given the implications of long-term anticoagulant therapy, it is desirable to identify which patients with idiopathic VTE are particularly prone to recurrence. If this study can be confirmed by others, measurement of thrombin generation may prove to be a relatively simple method of stratifying patients for their length of anticoagulation after a first time episode of idiopathic VTE.

An Audit Demonstrating A Reduction In MRSA Infection In A Specialised Vascular Unit Resulting From A Change In Infection Control Protocol

Thompson M. Eur J Vasc Endovasc Surg 2006;31:609-15.

Conclusion: Changes in infection control policy can markedly reduce MRSA infection in a vascular surgery unit.

Summary: Methicillin-resistant *Staphylococcus aureus* (MRSA) is most often a hospital-acquired infection. Rates of infection are continuing to rise worldwide. It has become the single most common organism associated with complex wound and graft infections after vascular surgery. (Eur J Vasc Endovasc Surg, 2001;21:289-94). The author sought to evaluate if changes in infection control policies could reduce MRSA infection in their vascular surgical unit.

In the author's vascular surgical ward in 2003, 18% of admissions were colonized by MRSA. There was a 10.6% MRSA infection rate at that time. Practice at that point was to segregate patients with proven MRSA from the rest of the patients on the ward. The author performed a prospective audit using regression analysis to identify factors that may stratify patients into low and high risk for MRSA colonization. An isolation policy was then introduced to segregate patients according to their risk of MRSA acquisition. All patients undergoing prosthetic vascular reconstruction were isolated. In addition, antibiotic policy was also altered. The MRSA status of 777 inpatients was evaluated and data were prospectively recorded during three time spans. Period 1 was November 2002 through April 2003, the period before the change in isolation and antibiotic policy. Period 2 was August 2003 through December 2003, and period 3 was October 2004 through January 2005, after the changes in infection control policy.

In period 1, hospital acquired MRSA colonization was 10.6%. This was reduced to 1.1% and 1.4% in periods 2 and 3, respectively ($P < .001$). MRSA infection rates also fell from 10.6% in period 1 to 2.9% and 0.9% over the same time frame ($P < .01$). Changes in MRSA infection rates were most pronounced in patients undergoing aneurysm repair (MRSA infection, 30.1% in period 1 vs 3.9% and 2.9% in periods 2 and 3) and lower limb revascularization (31% vs 0% vs 4.2%). Regression analysis indicated that the isolation system was a significant factor in reducing MRSA infection and colonization rates ($P < .001$).

Comment: This study was performed in a hospital where vascular surgical patients were housed in multipatient rooms; therefore, it may not apply to many US hospitals where many patients have individual rooms. Nevertheless, the idea of identifying patients at risk for MRSA infection and instituting infection control policies based on risk rather than on actual infection is interesting and indicates a proactive approach to this difficult problem. It is certainly possible that even in hospitals with individual patient rooms, a policy of increased contact precautions in patients at risk of MRSA infection may prove worthwhile.

Mortality In Cardiac And Vascular Outcomes In Extremely Obese Women

McTigue K, Larson JC, Valoski A, et al. JAMA, 2006;296:79-86.

Conclusion: Weight related health risk varies with degree of excess weight and is independent of race, smoking status, education, United States region, and physical activity level.

Summary: Obesity is defined as a body mass index (BMI) of ≥30. There are three categories of obesity: obesity 1 (BMI, 30 to 34.9), obesity 2 (BMI, 35 to 39.9), and extreme obesity (BMI, ≥40). The latter category of extreme obesity is increasing rapidly in the United States, particularly in women. The prevalence of women with a BMI of ≥50 has increased by five times over the period of 1986 to 2000 (Arch Intern Med 2003;163: 2146-8).

The authors sought to examine the health risks of extreme obesity and to determine how cardiovascular and mortality risks differ across clinical weight categories in women. Patients were recruited from 40 US centers involved in the Women's Health Initiative Observational Study. From this study, 90,185 women were examined for incident mortality and cardiovascular outcomes and stratified according to weight status. Patients were followed up for an average of 7.0 years, from October 1, 1993 to August 31, 2004. The main outcome measures included mortality, incidents of coronary heart disease, diabetes, and hypertension, stratified according to obesity class with a focus on extreme obesity.

The prevalence of extreme obesity varied with race and ethnicity. The incidence was 1% in Asian and Pacific Islanders and increased to 10% among black women. For patients with a body mass index within the normal range, the all-cause mortality rate per 10,000 person-years was 68.39 (95% confidence interval [CI], 65.26 to 71.68). For patients considered overweight but not obese, all-cause mortality rate was 71.16 (95% CI, 67.68 to 74.82). The all-cause mortality rates were 84.47 (95% CI, 78.90 to 90.42) for obesity category 1, 102.85 (95% CI, 92.9 to 113.86) for obesity category 2, and 116.85 (95% CI, 103.36 to 132.11) for extreme obesity.

Adjustments for age, smoking, educational achievement, US region, and physical activity indicated all-cause mortality, coronary heart disease mortality, and coronary heart disease incidents were not affected by race or ethnicity. There were positive trends in all-cause mortality and coronary heart disease incidents with increasing weight category among both white and black participants in the study. Most of the obesity-related mortality and coronary heart disease risks were mediated by hyperlipidemia, hypertension, and diabetes. Weight-related all-cause mortality was modified by age in white women, with obesity conferring less risk among older white women.

Comment: In my hospital, it seems that there is a 300-pound person in every elevator. The obesity epidemic is well established. To those of us who take care of patients, it is not surprising that mortality risks can be stratified by level of obesity. Overweight—but not obese—women may be initially comforted by the fact that overweight was not associated with increased mortality in this study. However, overweight was associated with increased risk of coronary heart disease incidents, and there certainly is considerable mortality and morbidity associated with coronary heart disease. It may be that the 7-year period of observation in this study is insufficient to detect the long-term health effects of just being overweight but not obese.